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### **Education:**

- 2012: Program in Innovation and Entrepreneurship (PRIE – now Ignite). Stanford Graduate School of Business  
2012: Nordic-NASA International Summer School in Astrobiology, Reykjavik, Iceland  
2010: Ph.D. in Planetary Sciences and Certificate in Astrobiology, University of Washington  
2006: Josep Comas i Solà International Summer School in Astrobiology, Santander, Spain  
2004: M.Sc. in Aeronautics & Astronautics, University of Washington  
2002: B.Sc. in Aerospace Engineering (with highest honors), Florida Institute of Technology

### **Publications:**

- Stüeken E., Anderson R., Bowman J., Brazelton W., Colangelo-Lillis J., Goldman A., **Som S.**, Baross J. "Did life originate from a global chemical reactor?" *Geobiology*. doi: 10.1111/gbi.12025. 2013.
- **Som S.**, Hagadorn J., Thelen W., Gillespie A., Catling D., Buick R. "Quantitative discrimination between geological materials with variable density contrast by high resolution X-ray computed tomography: an example using amygdale size-distribution in ancient lava flows". *Computers & Geosciences* (54) 231-238, 2013.
- Penido J., Fassett C., **Som S.** "Scaling relationships and concavity of small valley networks on Mars". *Planetary and Space Science* 75(1), pp. 105 - 116, 2013.
- Haqq-Misra J., Busch M., **Som S.**, Baum S. "The benefits and harms of transmitting into space". *Space Policy* (29) 40-48, 2013.
- **Som S.**, Catling D., Harnmeijer J., Polivka P., Buick R. "Air density 2.7 billion years ago limited to less than twice present levels by fossil raindrop imprints." *Nature* 484, 359 - 362, 2012.
- **Som S.** and Foing, B. "Thermal degradation of organic material by Raman spectroscopy: evaluation of a portable Raman spectrometer with applications to astrobiology and planetary exploration" *International Journal of Astrobiology* (accepted)
- **Som S.** "An International Symbol for the Sustained Exploration of Space" *Space Policy* (26) 140-142, 2010
- **Som S.**, Adam, Z, Vance, S. "Use the water: In-situ resource technology for icy-surface landers" *Acta Astronautica*, 64, 1006-1010, 2009.
- **Som S.**, Montgomery D., Greenberg H. "Scaling Relations for Large Martian Valleys" *JGR-Planets*, 114, E02005, 2009.
- Montgomery D., **Som S.**, Schreiber B.C., Jackson M., Gillespie A., Adams J. "Continental-Scale Salt Tectonics on Mars and the Origin of Valles Marineris and Associated Outflow Channels". *GSA Bulletin*, (121) 117-13, 2009.
- **Som S.**, Greenberg H., Montgomery D. "The Mars Orbiter Laser Altimeter Dataset: Limitations and Improvements". *Mars: The International Journal of Mars Science and Exploration*. (4) 14-26, 2008.
- Bourgeois, J., and **Som, S.** "Stratigraphic architectures spotted in southern Melas Chasma, Valles Marineris, Mars: Comment". *Geology* (e145), 2007.
- **Som S.**, Kimball J., Hermanson J., Allen J. "Stability and Heat Transfer Characteristics of Unsteady Condensing and Evaporating Films". *International Journal of Heat and Mass Transfer* (50) 1927-1937, 2007.

### **Experience:**

- 2013 – present : Blue Marble Space (contractor to NASA Ames Research Center)
  - Research Scientist @ Exobiology Branch, NASA Ames Research Center
  - Systems Engineer @ Flight Systems Implementation Branch, NASA Ames Research Center
- 2010 – 2013: NASA Postdoctoral Fellow @ NASA Ames Research Center – Exobiology Branch
- 2009 – present: Director and founder, Blue Marble Space (<http://www.bluemarblespace.org>)
- 2009 (summer): Visiting Scientist, ESA - ESTEC, Noordwijk, The Netherlands
- 2009: P.I. "Astrobiology Graduate Student Conference at the University of Washington". NAI DFF funded.
- 2004-2010: Research Assistant, Dept. of Earth and Space Sciences, UW.
- 2007-2008: Teaching Assistant: Mineralogy and Petrology, Geobiology, Access to Space (intro to electronics), UW.
- 2007-2008: Assistant Event Manager: Space Generation Congress, Hyderabad, India and Glasgow, Scotland.
- 2007: Instructor: Workshop on Mineralogy and Petrology in Astrobiology, UW.
- 2004: Consultant: Orbital Analysis, Lunar Transportation Systems, Bellevue, WA.
- 2003-2004: Research Assistant: Fluid Dynamics Laboratory, UW.
- 2002-2004: Teaching Assistant: Orbital Mechanics, Spacecraft Design, Introduction to Air and Space Vehicles, UW.

### **Honors and Awards:**

- 2012: 2<sup>nd</sup> place – FameLab: Exploring Earth and Beyond, Science communication competition, San Francisco, CA.
- 2009: David A. Johnston Memorial Fellowship for Exceptional Research, UW
- 2008: Robert G. and Nadine E. Bassett Field Study Fellowship, UW
- 2006: Jim and Lin Burke Outstanding Staff Award, Space Generation Congress, Valencia, Spain.
- 2006: 3<sup>rd</sup> place, poster competition, Astrobiology Science Conference, Washington, D.C.
- 2005: 1<sup>st</sup> place, Graduate Division, AIAA region VI student conference, San Luis Obispo, CA.
- 2001: Instrument, Systems and Automation Foundation Scholarship.
- 2000: Astronaut Mike Collins Space Exploration Leadership Scholarship (delivered by the Florida Space Grant Consortium).

### **Field Experience:**

- 2012: Well and hydrothermal spring fluid sampling. Coast Range ophiolite & Yellowstone National Park, USA
- 2011: Drilling into serpentine rocks. Coast Range ophiolite, USA.
- 2010: CAREX – Coordination Action for Research Activities on life in extreme environments Field Expedition, Iceland
- 2010: Astrobiology Field Course. Mojave Desert / Death Valley, USA.
- 2009: Endeavour-Axial Geochemical and Ecological Research (EAGER), R/V Atlantis – DSV Alvin (dive scientist).
- 2008: Evaporites and Salts Field Expedition, Sicily, Italy.
- 2007: New Millenium Observatory (NeMO), R/V Atlantis – ROV Jason
- 2006: UW Geology mapping field course.
- 2005: Astrobiology Field Expedition. Pilbara Craton, Western Australia.

### **Oral Presentations:**

- **Som S.**, "A coupled geochemical-bioenergetic model to constrain the potential for methanogenesis in serpentizing systems."
  - NASA Ames Research Center – October 16, 2012
  - University of Washington (**Invited**) – November 6, 2012
- **Som S.**, Air density 2.7 billion years ago limited to less than twice present levels by fossil raindrop imprints.
  - Space Telescope Science Institute (**Invited**) – April 9, 2012
  - Washington State University (**Invited**) – April 24, 2012
  - San Jose State University (**Invited**) – May 3, 2012
  - University of British Columbia (**Invited**) – September 18, 2012
  - American Geophysical Union Conference (**Invited**) – December 3, 2012
- **Som S.**, "So you are curious about Rocket Science?" East Carolina University (**Invited**) – November 8<sup>th</sup> 2011
- **Som S.**, Foing B. Testing portable Raman spectrometry for astrobiology. Astrobiology Science Conference, Houston, TX, 2010.
- **Som S.**, Domagal-Goldman S, Wright K, Boldt M., Antonio M. "The Astrobiology Graduate Student Conference (AbGradCon)." Paper Presented at the 60<sup>th</sup> International Astronautica Congress, Daejeon, South Korea, 2009.
- **Som S.** "Sustainability of liquid water on early Mars" Forum on Astrobiology Research (FAR) Seminar. NASA Astrobiology Institute. **Invited**. May 18, 2009
- **Som S.**, "Geomorphic effects of flowing water on Mars and the evolution of the Tharsis province" McGill University, dept. of Earth and Planetary Sciences. **Invited**. Mar 5 2009.
- **Som S.**, Manyapu K., Palia J., Beaumont M., Garcia-Oviedo L., Jordan N. "A Global Imperative: We Must Go!" Paper Presented at the 59th International Astronautical Congress, Glasgow, Scotland. Human Space Endeavours Symposium. Sept. 29-Oct. 3 2008.
- **Som S.**, Collins R.E., Schreiber B.C., Montgomery D."Salts on Mars: New Perspectives in Planetary Geomorphology and Astrobiological Implications" Paper Presented at the 59th International Astronautical Congress, Glasgow, Scotland. Space Life Sciences Symposium. Sept. 29-Oct. 3 2008.
- **Som S.**, "Exploring Other Worlds - Ancient Earth and Mars" Astrobiology Graduate Conference. Invited. April 13-14, 2008.
- **Som S.**, "A Global Imperative: We Must Go!" 58th International Astronautical Congress, SGAC plenary session, Hyderabad, India. Sept. 24-28 2007.
- **Som S.**, Montgomery D."A Re-Examination of the Warrego Valles Channels on Mars: Implications for the Early "Warm-Wet" Climate Paradigm." Paper Presented at the 58th International Astronautical Congress, Hyderabad, India. Joint Session for the Exploration of the Moon and Mars. Sept. 24-28 2007.
- Stube K., **Som S.**, Dyson K., Dador D., Dhaliwal S., Linn Barnett D., "A Blueprint for Youth Involvement in Space Development: the SGAC Youth Space Declaration and Strategic Plan." Paper Presented at the 58th International Astronautical Congress Hyderabad, India. 18th Symposium on Space Activity and Society. Sept. 24-28 2007.
- **Som S.**, Montgomery D., Greenberg H. "Downstream Variations of Martian Channels and Implications for Climate Evolution and Surface Habitability." Paper Presented at the 57th International Astronautical Congress, Valencia, Spain.

Astrobiology in the Solar System Session. Oct. 2-6 2006.

- **Som S.**, Adam Z., Vance S. "Use the Water: In-Situ Resource Technology for Icy-Surface Landers." Paper Presented at the 57th International Astronautical Congress, Valencia, Spain. Solar System Exploration Session. Oct 2-6 2006.
- **Som S.**, Adam Z., Cash M., Kirkpatrick J., Vance S., Wrobel, J. "Use the Water: In-Situ Resource Utilization Technology on a Europa Lander." Europa Focus Group meeting. NASA Ames Research Center. Feb 27-28 2006.
- **Som S.**, Hermanson J., Allen J. "Unsteady Film Condensation and Pumped Films on the Underside of a Flat Plate." Paper Presented at the 43rd AIAA Aerospace Science Conference, Reno, NV. Invited. Jan 10-13 2006.
- **Som S.**, Hermanson J., Allen J. "Unsteady Film Condensation and Pumped Films on the Underside of a Flat Plate." Paper Presented at the 2005 Region VI AIAA Student Conference, San Luis Obispo, CA. 1st prize recipient, graduate division. April 17-20 2005.
- **Som S.**, Hermanson J., Allen J. "Stability and Heat Transfer of an Unsteady Condensing Film". Gallery of Fluid Motion Video entry. American Physical Society (APS) Conference. Seattle, WA. Nov 19-22 2004.
- **Som S.**, Hermanson J., Allen J. "Stability and Heat Transfer of a Condensing film in an Unsteady Environment." Paper Presented at the 55th International Astronautical Congress, Vancouver, B.C, Canada. Microgravity Science & Engineering session. Oct 4-8 2004.

**Interests:**

Private pilot, SCUBA open water, ancient civilization site travel, small mechanics, bicycling.